

Ecology Ecosystem 2019: Climate change land cover/use and vegetation evolution in the upper Huai river basin

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Abstract

Land use/land cover and vegetation in upper Huai river basin are considered to be highly susceptible to climate change. However, there is less indication of the change trends in both climate and land cover/land use in the study basin. Thus less understanding of the watershed sensitivity and adaptability to climate change. Here we identified the spatial and temporal patterns of changes in climate (from 1960 to 2016), land cover/land use and vegetation (from 2000 to 2014) in the upper Huai river basin using land using the Mann- Kendall test estimator, land use transfer-matrix and NDVI for the four-year time interval. During the past 56 years, there was a slightly decreasing trend in precipitation while air temperature has increased by 1.2 C. During the past 15 years, land cover has changed significantly. Herein residence construction land, artificial water and, artificial vegetation with a discrete distribution, increased and wetland and artificial water bodies showed a diminishing trend in the study period. On the other hand, natural vegetation coverage does not show obvious changes. Land use/cover change impact was gradually increased by human intervention on various land use types Our findings have implications for predicting the safety of water resources and water eco-environment in the Huai river basin under global change.

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